EPSON

Setup Guide

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FCC COMPLIANCE STATEMENT
FOR AMERICAN USERS

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio and television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ☐ Reorient or relocate the receiving antenna
- ☐ Increase the separation between the equipment and receiver
- ☐ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- ☐ Consult an experienced radio/TV technician for help.

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels that exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

FOR CANADIAN USERS

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.

Important Safety Instructions

1. Read all of these instructions and save them for later reference.
2. Follow all warnings and instructions marked on the computer.
3. Unplug the computer from the wall outlet before cleaning. Use a damp cloth for cleaning; do not use liquid or aerosol cleaners.
4. Do not spill liquid of any kind on the computer.
5. Do not place the computer on an unstable cart, stand, or table.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation; do not block or cover these openings. Do not place the computer near or over a radiator or heat register.
7. Operate the computer using the type of power source indicated on its label.
8. If you plan to operate the computer in Germany, observe the following safety precaution:

   To provide adequate short-circuit protection and over-current protection for this computer, the building installation must be protected by a 16 Amp circuit breaker.

   Beim Anschluß des Computers an die Netzversorgung muß sichergestellt werden, daß die Gebäudeinstallation mit einem 16 A Überstromschutzschalter abgesichert ist.
9. Connect all equipment to properly grounded (earthed) power outlets. If you are unable to insert the plug into an outlet, contact your electrician to replace your outlet. Avoid using outlets on the same circuit as photocopiers or air control systems that regularly switch on and off.

10. Do not allow the computer's power cord to become damaged or frayed.

11. If you use an extension cord with the computer, make sure the total of the ampere ratings of the devices plugged into the extension cord does not exceed the ampere rating for the extension cord. Also, make sure the total of all products pluggedinto the wall outlet does not exceed 15 amperes.

12. Do not insert objects of any kind into this product through the cabinet slots.

13. Except as specifically explained in this manual, do not attempt to service thecomputer yourself. Refer all servicing to qualified service personnel.

14. Unplug the computer from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    A. When the power cord or plug is damaged.

    B. If liquid has entered the computer.

    C. If the computer does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions. Improper adjustment of other controls may result in damage and often requires extensive work by a qualified technician to restore the computer to normal operation.

    D. If the computer has been dropped or the cabinet has been damaged.

    E. If the computer exhibits a distinct change in performance.

Instructions Importantes de Sécurité

1. Lire complètement les instructions qui suivant et les conserver pour références futures.

2. Bien suivre tous les avertissements et les instructions indiqués sur l'ordinateur.

3. Débrancher l'ordinateur de toute sortie murale avant le nettoyage. Utiliser un chiffon humide; ne jamais utiliser un nettoyeur liquide ou une bonbonne aérosol.

4. Ne jamais renverser un liquide d'aucune sorte sur l'ordinateur.

5. Ne pas placer l'ordinateur sur un chariot, un support, ou une table instable.

6. Les évents dans le meubles, à l'arrière et en dessous sont conçus pour l'aération; on ne doit jamais les bloquer. Ne pas placer l'ordinateur près d'une source de chaleur directe.

7. Le fonctionnement de l'ordinateur doit s'effectuer conformément au type de source d'alimentation indiquée sur l'étiquette.

8. Lorsqu'on désire utiliser l'ordinateur en Allemagne, on doit observer les normes sécuritaires qui suivent:

   Afin d'assurer une protection adéquate à l'ordinateur contre les court-circuits et le survoltage, l'installation de l'édifice doit comprendre un disjoncteur de 16 amp.

9. On doit brancher tout l'équipement dans une sortie reliée à la masse. Lorsqu'il est impossible d'insérer la fiche dans la prise, on doit retenir les services d'un électricien ou remplacer la prise. Ne jamais utiliser une prise sur le même circuit qu'un appareil à photocopie ou un système de contrôle d'aération avec commutation marche-arrêt.

10. S'assurer que le cordon d'alimentation de l'ordinateur n'est pas effrité.

11. Dans le cas où on utilise un cordon de rallonge avec l'ordinateur, on doit s'assurer que la valeur totale d'ampères branchés dans le cordon n'excède en aucun temps les ampères du cordon de rallonge. La quantité totale des appareils branchés dans la prise murale ne doit jamais excéder 15 ampères.

12. Ne jamais insérer un objet de quelque sorte que ce soit dans les cavités de cet appareil.

13. Sauf tel que spécifié dans cette manual, on ne doit jamais tenter d'effectuer une réparation de l'ordinateur. On doit référer le service de cet appareil à un technicien qualifié.

14. Débrancher l'ordinateur de la prise murale et confier le service au personnel de service qualifié selon les conditions qui suivent:

    A. Lorsque le cordon d'alimentation ou la prise sont endommagés.

    B. Lorsqu'un liquide s'est infiltré dans l'ordinateur.

    C. Lorsque l'ordinateur refuse de fonctionner normalement même en suivant les instructions. N'ajuster que les commandes qui sont énumérées dans les instructions de fonctionnement. Tout ajustement inadéquat de tout autre contrôle peut provoquer un dommage et souvent nécessiter des réparations élaborées par un technicien qualifié afin de remettre l'appareil en service.

    D. Lorsqu'on a échappé l'ordinateur ou que l'on a endommagé le boîtier.

    E. Lorsque l'ordinateur démontre un changement noté au niveau de sa performance.

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Appendix A Using Memory

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Introduction

This manual explains how to set up your Epson* computer. Chapter 1 provides simple instructions for setting up your system and connecting peripheral devices such as the monitor, mouse, and printer.

Chapter 2 describes how to run the SETUP program to define your computer's configuration. Do this before you use your computer. If you change the configuration later, you will need to run it again.

After you set up your system and run SETUP, you can install your operating system and software. (For general installation guidelines, see the Read This First card that came with your computer.)

For information on using system memory, see Appendix A.

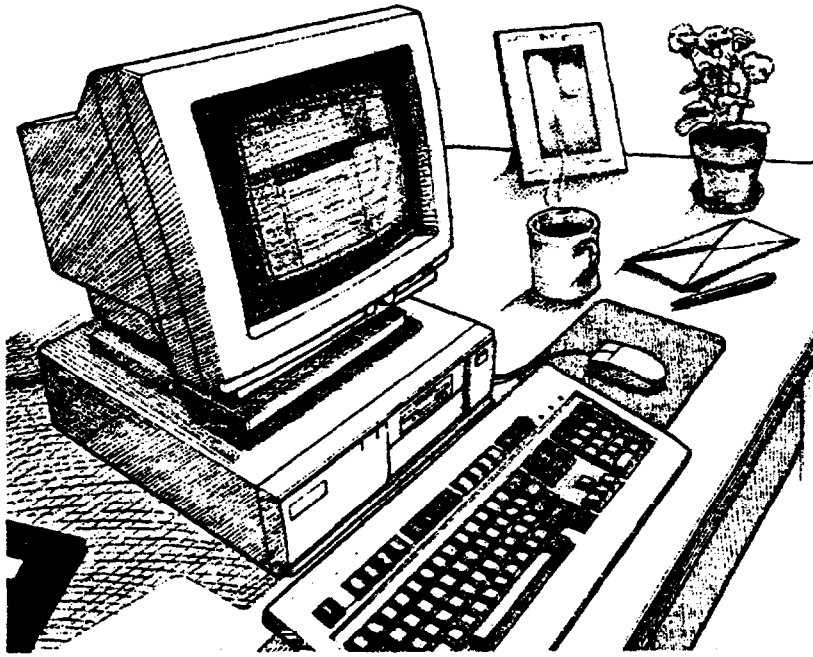
> **Note**
> **If your computer has already been configured, you don't need to run SETUP or install any software. Just set it up as described in Chapter 1 and turn it on.**

For complete information about using your computer, see the User's Guide.

Chapter 1

Setting Up Your System

To set up your computer, follow the eight steps in this chapter. You may want to open this manual's back cover foldout so you can refer to the illustrations identifying the different parts.



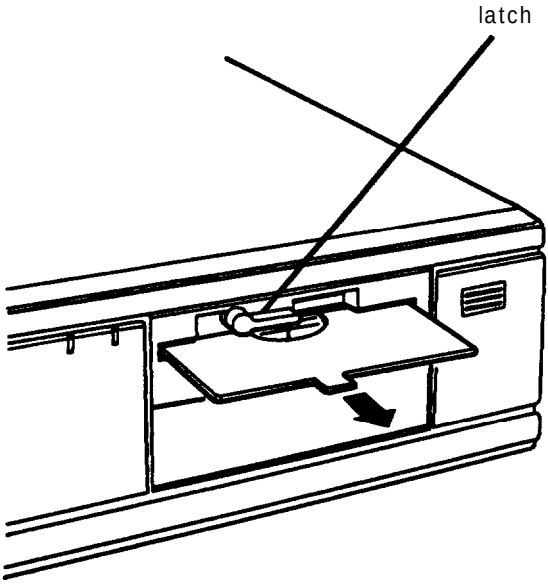
1 Choosing a Location

When selecting a place to set up your system, choose a safe, convenient location that provides the following:

- **A flat, hard surface. Surfaces like beds and carpets attract static electricity, which can erase data on your disks, damage the computer% circuitry, and prevent proper ventilation.**
- **Good air circulation. Leave several inches of space around the computer so air can move freely.**
- **Moderate environmental conditions. Select a cool, dry area and protect your computer from extremes in temperature, humidity, dust, and smoke. Avoid direct sunlight or other sources of heat.**
- **No electromagnetic interference. Do not place your system too close to any electrical device, such as a telephone or television, which generates an electromagnetic field.**
- **Appropriate power source. Connect all your equipment with the appropriate power cords for the power source in your area. If you are operating the computer in a country other than the one in which you purchased it, see "Power Source Requirements" in Appendix A of the User's Guide for a list of the cords you should use.**

2 Removing the Protective Curd

If you have a 5.25-inch diskette drive, there is a protective card in the diskette slot. To remove it, lift the latch up to release the card; then pull it out.



> **Caution**
> **Never turn on your computer with a protective card in the diskette slot. You could damage the diskette drive.**

If you have a second 5.25-inch diskette drive, be sure to remove the card from it also.

Save the protective card. If you transport your computer later, insert the card to protect the drive's read/write heads during shipping.

3 *Connecting a Monitor*

The way you connect your monitor to the computer depends on the type of monitor you have. If you have a VGA monitor (or a multifrequency monitor with an analog connector), you can connect it to the computer's built-in VGA port as described below. If you have any other type of monitor (or if you want to install a display adapter card to control your monitor), see "Using a Display Adapter Card" on page 1-7.

> **Note**
> **If a manual was provided with your monitor, refer to those instructions along with the ones below.**

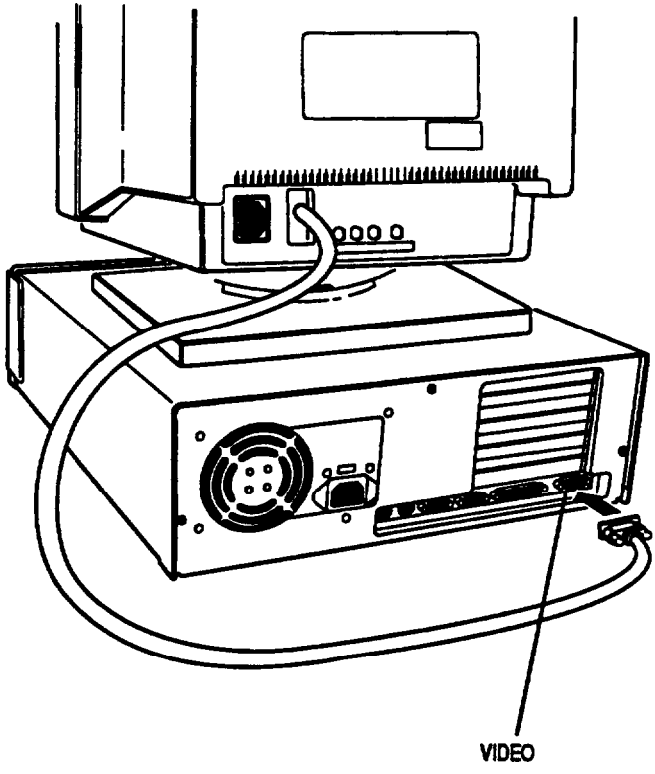
Using the VGA Port

Follow these steps to connect your VGA monitor to the built-in VGA port on the computer.

1. **Place your monitor on top of or near the computer. Turn the monitor and computer around so the backs are facing you.**

2 **There should be two cables provided with your monitor: the monitor cable (to connect it to the computer) and the power cable (to connect it to a power source). On most monitors, the monitor cable is permanently attached to the monitor, such as the one shown in the illustration on the next page. If your monitor does not have an attached cable, connect the cable to it now. (gee your monitor manual for instructions.)**

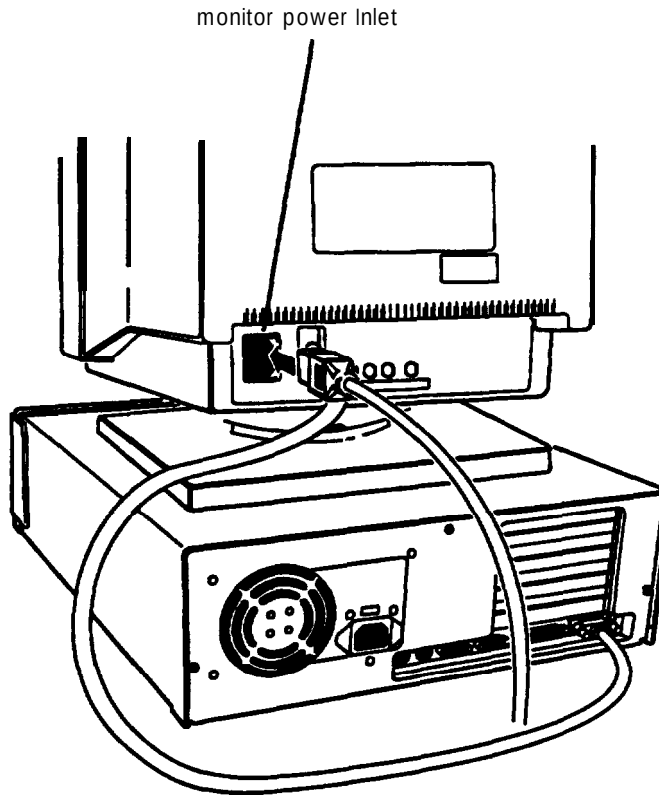
3. **Examine the connector on the monitor cable and line it up with the VIDEO port on the computer. Then insert the connector into the port, as shown below.**



> **Caution**
> **To avoid damaging the connector, be careful not to bend the pins when inserting it.**

4. **If the connector has retaining screws, tighten them.**

5. **Plug the monitor power cord into the monitor's power inlet, as shown below.**



6. **Plug the other end of the power cord into an appropriate grounded (earthed) electrical outlet.**

Using a Display Adapter Card

If you are not using a VGA monitor or if you want to install a display adapter card to control your VGA monitor, read the guidelines in this section.

Skip this section if you connected your monitor to the computer's built-in VGA port.

Before you can connect a monitor to a display adapter card, you must install the card in your computer. If it is not already installed, follow the instructions in Chapter 2 of the User's Guide to install an option card.

When installing the card, make sure any switches or jumpers on the card are set properly. For example, you may need to change a switch setting to select color or monochrome. See the documentation that came with your monitor and display adapter card for instructions.

If you install a display adapter card, you must set jumper J10 on the main system board to disable the built-in VGA port. (You do not have to do this if you connected the Card to the VGA feature connector on the main system board.) You may also need to set jumper J11 to indicate whether you are using a color or monochrome monitor. (If you are using a VGA monochrome monitor, however, set the jumper for color so your system uses the VGA memory addresses.) See Chapter 2 of the User's Guide for instructions on changing jumper settings.

> **Note**
> **If you install a high-resolution graphics adapter card that connect to an alternate VGA interface (also called a "feature connector"), see Chapter 2 of the User's Guide for instructions on connecting the card to the connector** on the main system **board.**

After you install the card, connect your monitor to the computer. If your monitor came with its own manual, follow the instructions there. Otherwise, you can follow the steps in "Using the VGA Port" on page 1-4; just insert your monitor connector into the adapter card port instead of the built-in VGA port.

4 Connecting a Printer or Other Device

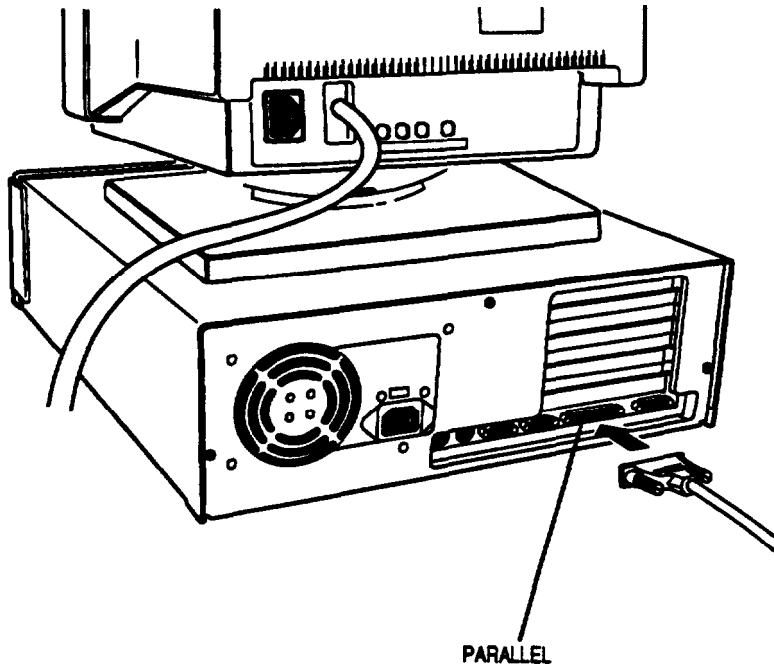
Your computer has one parallel and two serial ports. To connect a printer or other peripheral device, follow the instructions below.

Using the Parallel Port

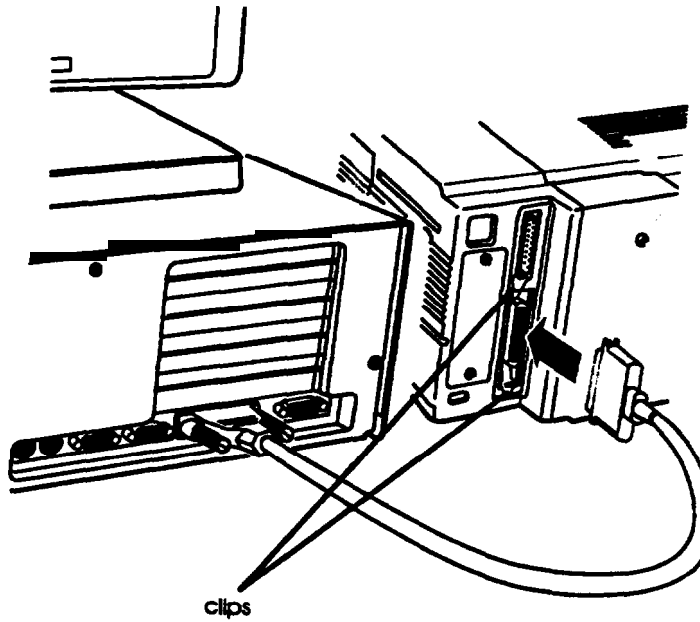
Follow these steps to connect a parallel printer to your computer:

1. **Place the printer next to the computer so that the backs are facing you.**

2. **Align the connector end of the printer cable with the PARALLEL port, as shown below, and plug it in. If the connector has retaining screws, tighten them by hand or with a screwdriver.**



3. **Connect the other end of the cable to the printer as shown below. To secure the cable, squeeze the clips at each side of the printer port and push them into place.**

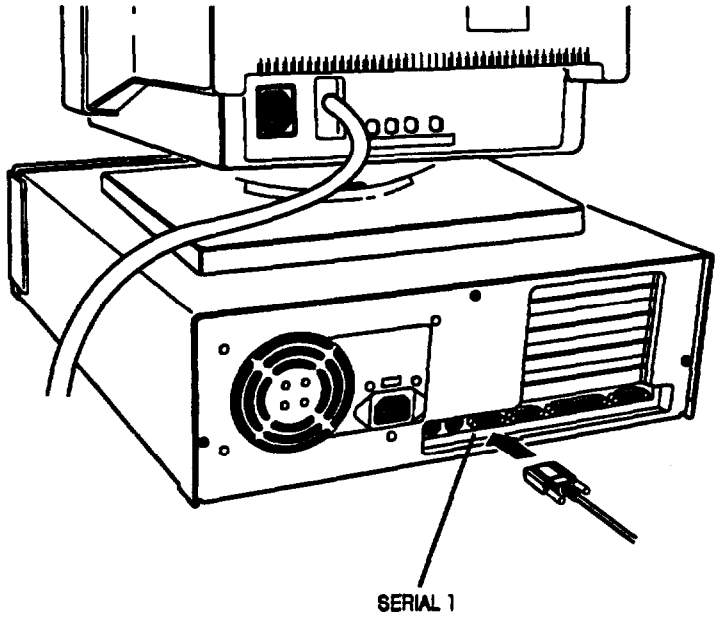


4. **Plug the print&s power cord into an appropriate grounded (earthed) electrical outlet.**

Using the Serial Ports

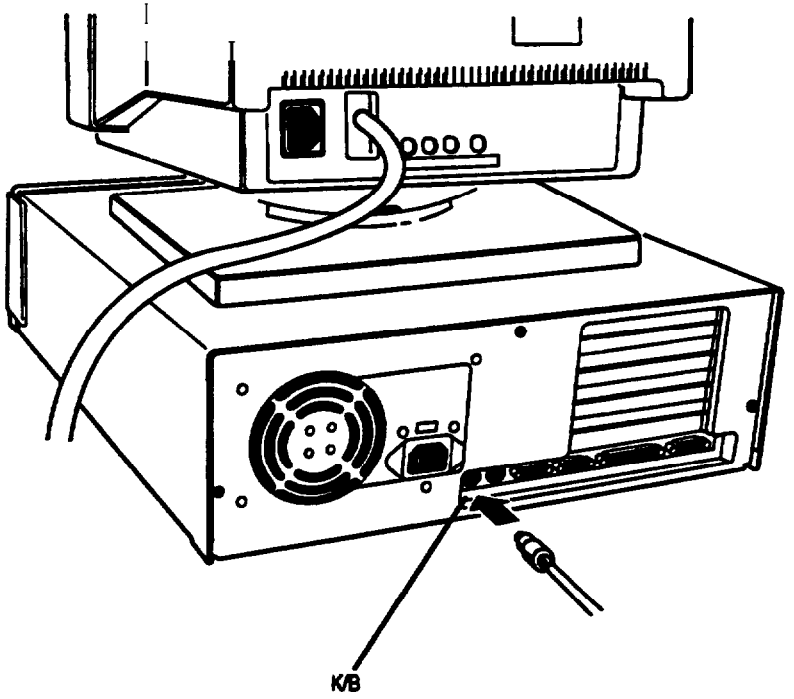
If you have a printer, a modem, or other peripheral device with a serial interface, you can connect it to one of the serial (RS-232C) ports on the back of the computer. These ports use a DB-9P connector, so be sure you have a compatible cable.

To connect a serial device, insert the connector into one of the pork, marked SERIAL 1 and SERIAL 2 If you are connecting only one serial device, use the SERIAL 1 port, as shown below.



5 Connecting the Keyboard

To connect the keyboard, hold the cable connector so the arrow on the connector faces up. Insert it into the port marked K/B, as shown below.



Caution

Although the connectors and ports for the keyboard and mouse are physically identical, they cannot be used interchangeably. Be sure to plug the keyboard connector into the keyboard (K/B) port.

You can change the angle of the keyboard by adjusting the legs on the bottom. Turn it over and flip each leg upward until it locks into place. It is important to select the best angle so you will prevent wrist fatigue. (You may even want to purchase a wrist pad--sold at computer stores-for further comfort.)

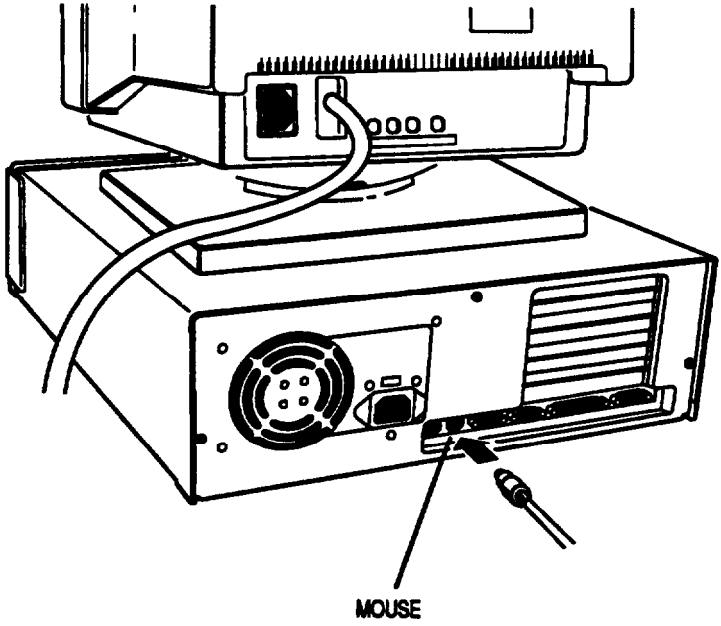
TO lower the keyboard, press the leg back into its slot.

6 Connecting the Mouse

Your computer has an auxiliary port for an IBM® PS/2™ compatible mouse that uses a round, miniature DIN (6-pin) connector. If your mouse has this type of connector, you can connect it to the computer's built-in port.

> *Note*
> **If your mouse requires a different interface port, you can connect it to the built-in serial port or install an option card that provides the interface. Then disable the built-in mouse port by changing the setting of jumper J9, and enable the option card port by changing J12 See Chapter 2 of the User's Guide for instructions.**

To connect a mouse to the built-in mouse port, plug the connector into the port marked MOUSE, **as shown below.**



Caution

Although the connectors and ports for the mouse and keyboard are physically identical, they cannot be used interchangeably. Be sure to plug the mouse connector into the MOUSE port.

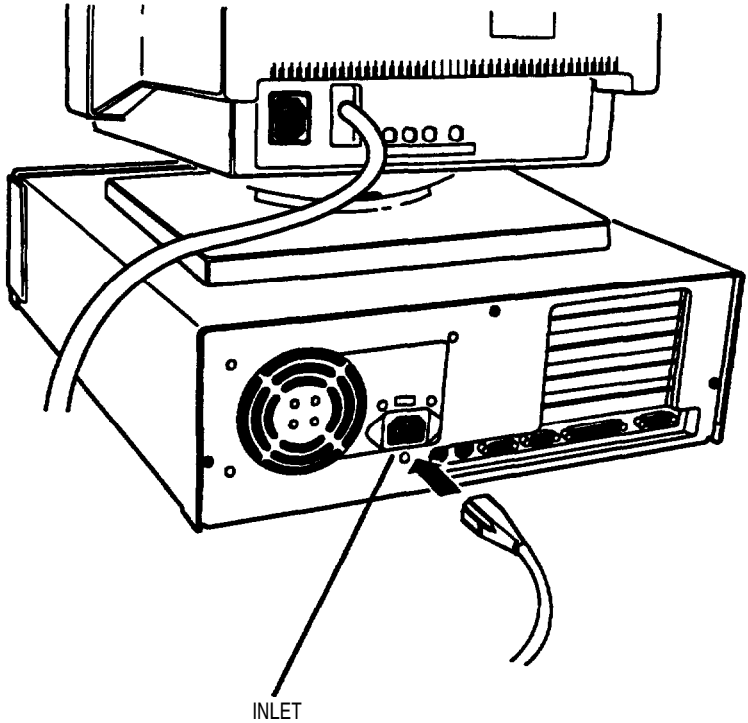
If your system has not already been configured, you may need to install a mouse driver. See your mouse manual for instructions.

7 Connecting the Power Cord

Follow these steps to connect the power cord:

1. **Plug the power cord into the AC power *INLET* on the back panel, as shown below.**

> WARNING
> **To avoid an electric shock, be sure to plug the cord into the computer before plugging it into the wall outlet**



2. **Plug the other end of the power cord into an appropriate grounded (earthed) electrical outlet.**

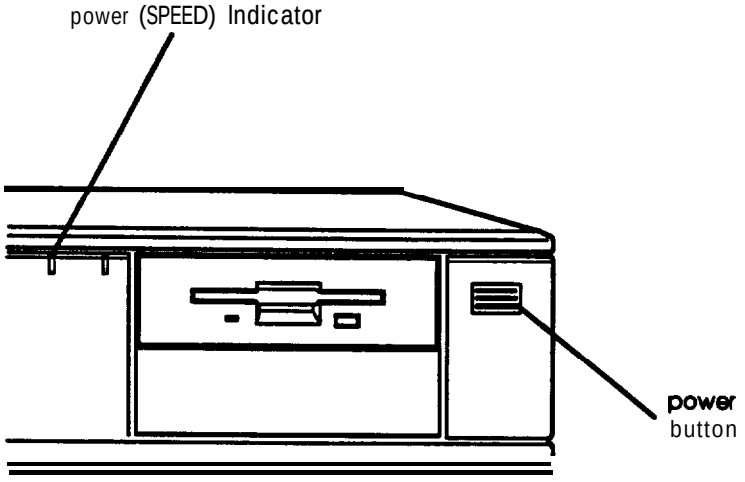
8 Turning On the Computer

After you set up your system, you're ready to turn on the power. Follow these steps:

1. **Turn your computer around so the front panel faces you and place your other system devices (monitor, printer, etc.) in a convenient arrangement.**

2. **Turn on the monitor, printer, and any other devices connected to the computer.**

3. **To turn on the computer, press the power button located on the right side of the front panel.**



The power indicator on the left side of the front panel lights up. After a few seconds, the screen displays a count of the system memory, and then the computer performs its power-on diagnostics. This is a series of checks the computer runs each time you turn it on to make sure everything is working correctly.

4. If necessary, use the controls on your monitor to adjust the brightness and contrast until characters on the screen are clear and at a comfortable level of intensity. If your monitor has horizontal and vertical hold controls, you may need to use them to stabilize the display.

5. The screen displays the following prompt:

   ```
   Press <F2> to run SETUP
   ```

   Do not press any key yet; you just want to make sure the computer is working. This prompt appears every time you turn on your computer so you can run SETUP if necessary. After a few seconds, the prompt disappears.

   If there is no operating system installed on your computer, you then see an error message. Ignore the message for now; once you install the operating system, you will not see this message. If MS-DOS is already installed, you may see the command prompt (`C : \`) or the menu screen of a program such as Windows®, if it has been configured to do this.

Where To Go Next

If your system is preconfigured, the only thing you need to do now is install any additional software and VGA device drivers you want to use. (See your application program manuals for instructions on installing software.) If you are using Microsoft@ Windows, be sure to install the appropriate VGA driver(s) for your monitor. See the *VGA Utilities Guide* for instructions.

Then see Chapter 1 of the User's Guide for important information about operating your computer.

If your system is not preconfigured, follow theinstructions in Chapter 2 to run the SETUP program. Guidelines at the end of Chapter 2 tell you what to do next.

Chapter 2

Running the SETUP Program

If your computer was not preconfigured, you need to run the SETUP program the first time you use it to define how your system is up. You may need to run it again later if you change some part of your configuration.

The SETUP program is stored in the computer's read-only memory (ROM), so you can run the program any time you turn on or reset your computer.

SETUP lets you verify or change the following:

- **Current date and time**
- **Installed base and extended memory**
- **Processor speed settings**
- **Fast boot option**
- **Location of the built-in video BIOS**
- **System and video shadow RAM address operation**
- **Keyboard delay, speed, and num lock status**
- **Installed equipment information**
- **Parallel and serial port operation and address assignments**
- **Speaker operation**
- **Built-in diskette drive and hard disk drive controller operation**
- **Password and network server mode operation**

- **Type(s) of diskette and hard disk drive(s) installed**
- **Cache, cache testing, and non-cacheable address operation for the internal cache.**

The configuration you define through SETUP is stored in a special area of memory called CMOS RAM. This memory is backed up by a battery, so it is not erased when you turn off or reset the computer. Whenever you reboot the computer, it checks the settings, and if it discovers a difference between the information in the CMOS RAM and its actual hardware configuration, it prompts you to run SETUP. You see a message such as the following:

Memory size mismatch

Press <F2> to run SETUP

If this happens, press F2 to run SETUP and correct the setting as described in this chapter. (You may also see a message to press F1 to resume.)

Starting the *SETUP Program*

To start SETUP, turn on your computer. As soon as you see the following prompt, press F2:

Press <F2> to run SETUP

> Note
> **If you do not press F2 within five seconds, the computer tries to load the operating system and you will not be able to run SETUP. If this happens, turn off the computer wait 10 seconds, then turn it back on to try again.**

You see the first screen of SETUP information:

```
                    [ SYSTEM SETUP ]

<F1>=Help <F3>=Set Date/Time <F9>=Set defaults <F10>=Save <Esc>=Exit

[ Installed Memory ]
   Base memory . . . . . . . . . . . . . . . . 0000640 KB
   Extended memory . . . . . . . . . . . . . . 0003072 KB

[ Boot Options ]
   Auto speed . . . . . . . . . . . . . . . . . Disabled
   Software speed change . . . . . . . . . . . Enabled
   Power-on low speed . . . . . . . . . . . . . Disabled
   Fast boot option . . . . . . . . . . . . . . Disabled
   On-board video BIOS located at . . . . . C000h

[ Keyboard Options ]
   Keyboard function . . . . . . . . . . . . . Enabled
   Keyboard delay . . . . . . . . . . . . . . Keyboard Delay = 0250 ms
   Keyboard Speed . . . . . . . . . . . . . . Keyboard Speed = 020 kps
   Num Lock status after boot . . . . . . . . Num Lock ON
```

> Note
> **If you have installed optional equipment or if there is a problem with your configuration, you see this message:**
>
> `Invalid Setup detected! Sat Default Values (Y/N)?`
>
> **Press [Y] to set the default values (determined by your computer automatically).**

There are several screens of SETUP options. A box in the lower left corner continuously displays the current date and time. The help lines at the top and bottom of the screen list some of the keys you can press to perform various SETUP operations.

You can change most of the SETUP options listed in this chapter; however, the program automatically sets the following options and you cannot change them:

- Basememory
- Extendedmemory
- Number of diskette drives
- Video type.

Selecting Options

A solid cursor bar highlights the option currentlyy selected. You canscroll through the options using [↓] ar[↑]. When you reach an option you want to change, press [Enter] to select it. The current setting flashes. Then press [+] or [−] to change the setting. When the setting is correct, press [↑] or [↓] to go to the next option.

> Note
> If you use the + key on the main keyboard (not the numeric keypad), be sure to hold down the [Shift] key.

To use the cursor control keys on the numeric keypad, press [Num Lock] to turn off the num lock function, if necessary. (The light on the key is on when the function is enabled.)

The table below lists the keys you can use to perform SETUP operations.

SETUP key function

Key	Function
F1	Displays a help screen describing some of the keys you can use with the program
F3	Displays the date and time prompts so you can set a new date and/or time
F4	Sets all the options to the settings last stored In the CMOS RAM
F9	Sets all the options to their default settings
F10	Saves the current configuration settings in your Computer's CMOS RAM
Esc	Allows you to save or discard you current settings and exit the program
↓, ↑	Move the cursor to the next or previous option and highlight it
Home, End	Move the cursor to the first or last SETUP option and highlight it
Pg Up, Pg Dn	Move the cursor to the first option under the previous or next heading and display the previous or next heading that can appear on the screen; also scroll through user defined non-cache areas in 256KB increments
Enter	Selects the highlighted option so you can change its setting
+, −	Change the current setting; for numeric parameters, Increases or decreases the current numeric value
← Backspace	Erases the characters you type for options that require keyboard entry. such as the date and time

The rest of this chapter describes how to choose the correct SETUP parameters for your system.

Setting the Date and Time

The real-time clock in your computer continuously tracks the date and time--even when the computer is turned off. Once you set the date and time using SETUP, you should not need to change them, unless you need to adjust the time for daylight savings or other seasonal adjustments. (The computer automatically changes the date for leap years.)

To change the date and/or the time, follow these steps:

1. Press F3. You see the date prompt, such as the following:

```
Enter the date in mm/dd/yyyy format.
09/15/1993
```

2 If the entire date is correct, press [and go to step 5.

   If you need to change the date, type two digits for the current month (mm), such as 09. The cursor moves to the day (dd) field.

3. Type a two-digit number for the current day (such as 06 or 15). The cursor moves to the year (yyyy) field.

4. Type four digits for the year, such as 1993, and press Enter. (If you make a mistake, press ← Backspace to erase the characters before you press Enter.)

   If you entered an invalid date (such as month 13), you see the date prompt again. Follow steps 2 through 4 to correct it.

5. Now you see the time prompt:

```
Enter the time in hh:mm:ms format.
 16:03:47
```

   If the time is correct, press Enter.

If you need to change the time, type the current hour (hh), then minutes (mm), and then seconds (ss) according to a 24-hour clock. (For example, 5 P.M. would be hour 17.) Then press Enter. If you make a mistake, press <- Backspace to erase the characters before you press Enter.

If you entered an invalid time (such as hour 25), you see the time prompt again. Repeat step 5 to enter a valid time.

You see the date and time you set displayed on the screen.

Setting the Processor Speed Options

There are three processor speed options you can set to customize your computer's processing speed. The tablebelow lists these options and their default settings.

Processor speed options

Option	Default setting
Auto speed	Disabled
Software speed change	Enabled
Power-m low speed	Disabled

The Auto speed and Power-on low speed options allow you to set your computer's processor to operate at one of three speeds: high, low, and automatic.

High speed is the fastest speed at which your computer% processor can operate, (33, 50, or 66 MHz); low speed simulates an 8 MHz processor speed; and automatic speed switches from high to low speed when your computer accesses a diskette drive.

At high speed, the processor can access memory faster, so your programs work faster. Unless you are using an application program that requires low speed or an older application program that has specific timing requirements when accessing diskettes, leave Auto speed and Power-on low speed at their default settings (Disabled).

The speed settings you select in SETUP take effect each time you turn on or reset your computer. You can also change the speed temporarily by entering a keyboard command or by running the ESPEED program, as described in Chapter 1 of the *User's Guide*.

The Software speed change option allows you to disable the keyboard speed changing commands if they are not compatible with the application programs you are using. See Chapter 1 of the User's Guide for more information.

> Note
> **When the processor is running at high speed, the SPEED light on the front panel is green; when it runs at low speed, the light is amber.**

Setting the Fast Boot Option

The Fast boot option allows you to speed up power-on diagnostic testing When you turn on your computer. When you enable Fast boot, your computer does not run certain system memory tests. The default setting is Disabled.

Setting the System and Video BIOS Options

Your computer's shadow RAM feature copies the contents of your system and video BIOS ROM (and any external BIOS ROM you may have installed) into RAM so the computer can perform certain operations faster.

Your computer enables shadow RAM automatically. However, there are two SETUP options you can use to control the memory addresses your computer uses for shadow RAM: On-board video BIOS location and shadow RAM areas.

Your video BIOS ROM is located at memory address C000h (default setting) so you can use your computer with AT compatible software. If you want to use PS/2 compatible software, change On-board video BIOS locationto address E000h.

If you want to control the RAM address areas your computer uses for shadow RAM, you can enable or disable shadow RAM for up to twelve 16KB address areas. You may need to do this if you install an option card, such as a SCSI card, that locates its RAM in one or more of these areas

The Shadow RAM areas option allows you to enable or disable shadow RAM in the address ranges listed below. The default setting for each area is listed in parentheses. If you want to select one of these address ranges, press End to display the Shadow RAM areas at the end of the SETUP menu.

- **C0000h - C3FFFh (Enabled)**
- **C4000h - C7FFFh (Enabled)**
- **C8000h-CBFFFh (Enabled)**
- **CC000h -CFFFFh (Enabled)**
- **D0000h - D3FFFh (Disabled)**
- **D4000h - D7FFFh (Disabled)**
- **D8000h - DBFFFh (Disabled)**
- **DC000h - DFFFFh (Disabled)**
- **E0000h-E3FFFh (Disabled)**
- **E4000h-E7FFFh (Disabled)**
- **E8000h-EBFFFh (Disabled)**
- **EC000h - EFFFFh (Disabled).**

To enable or disable shadow RAM at an address, select the area and press + or - to change the setting.

> Note
> **Your computer automatically enables shadow RAM in the address area F0000h through FFFWh. You cannot disable shadow RAM in this area.**

Setting the Keyboard Options

There are four keyboad options available:

- **Keyboard function**
- **Keyboard delay**
- **Keyboardspeed**
- **Num Lock status after boot.**

The Keyboard function option allows you to change the Keyboard delay and keyboard speed option settings. If Keyboard function is Enabled (the default setting), you can change the other settings. If Keyboard function is Disabled, the Keyboard delay and speed settings are listed as N/A and you cannot change them. You can change the Num Lock status after boot setting any time.

The Keyboard delay option allows you to select a delay period between the time you press a key and the time the character appears on the screen. You can select a delay of 0, 250, 500, 750, or 1000 ms (milliseconds); the higher the number, the longer the delay. The default setting is 250 ms, or ¼ second.

The Keyboard speed option sets the rate at which a character repeats when you hold down a key. You can select virtually any speed between 002 and 031 kps(keys per second);the higher the number, the faster the repeat rate. The default setting is 020 kps.

The Num Lock status after boot option allows you to select the initial state of the num lock function when you turn on or reset your system. You can select ON or *OFF; the* **default setting is ON.**

Installed Equipment

SETUP displays information about the following equipment that it detects in your system under the Installed equipment heading:

- **Number of diskette drives**
- **Video type**
- **Math coprocessor (built-in).**

You cannot change the settings for these parameters.

The Number of diskette drives installed can be 1 or 2. You can set the type(s) of diskette drive(s) you have installed under the Diskette Drives heading. See page 2-20 for more information.

The video type can be one of the following:

- **EGA or VGA**
- **40 Column Color**
- **80 Column Color**
- **Monochrome.**

If you are using the built-in VGA port, or if you install an EGA or VGA card, SETUP displays EGA or VGA the video type. If you install a CGA card, SETUP displays either 40 Column Color or 80 Column Color. SETUP displays Monochrome if you install a monochrome display adapter card.

You see Yes at the Math coprocessor option if SETUP detects a built-in math coprocessor or No if it does not detect one.

Setting the Built-in Paralllel and Serial Port Options

There are two sets of options you can use to control the operation of your built-in parallel and serial ports: the primary port options and the I/O address options. The primary port options are listed under the I/O `Ports` heading and the I/O address options are listed under the `Port configuration` heading. The table below lists the options and their available settings.

Parallel and serial port options

Options	Settings
Primary parallel port (LPT1)	Enabled * and Disabled
Primary serial port (COM1)	Enabled * and Disabled
Secondary serial port (COM2)	Enabled * and Disabled
Primary parallel I/O address	3BCh - LPT1 *, 378h - LPT2, 278h - LPT3
Primary serial I/O address	3F8h - COM1 *, 2F8h - COM2, 338h - COM3, 238h - COM4

* Default setting

The default setting for the parallel port and both serial ports is `Enabled` **The default I/O address setting is primary for LPT1, the parallel port, and COM1, the first serial port.**

If you are using only the two primary ports, you do not need to change any settings.

If you are using both built-in serial ports or if you install additional parallel or serial ports on one or more option cards, you may want to reassign the built-in ports or disable them. Follow these guidelines:

- If you are using only the built-in port, select Enabled (the default setting) for the primary port option. Also select the default I/O address option listed in the table above.

- If you are using both serial ports or you installed an additional parallel or serial port on an option card but still want to use the primary built-in port as your primary port, select Enabled (the default setting) for the primary port option. Also select the primary I/O address setting (LPT1 or COM1) for the port's I/O address option (the default setting).

- If you installed an additional port that is pre-set as the primary port (LPT1 or COM1), select Enabled for the primary port option (if you still want to use the built-in port) or Disabled (if you do not want to use the built-in port). If you leave the built-in port enabled, you must select a different I/O address for it. Select one of the non-default settings listed in the table above for the parallel or serial I/O address options, as necessary.

- If you installed two or more additional ports, you can select Enabled for the primary port option (if you still want to use the built-in port. or Disabled (if you do not want to use the built-in ports. If you leave the built-in port enabled, select a different I/O address for it if you do not want to use it as the primary port. You can select one of the settings listed in the table above for the parallel or serial I/O address options, as necessary.

Note
Be sure to set the jumpers on any parallel or serial port option card(s) you install to indicate how you want the port(s) to be assigned. The SETUP options do not assign the addresses for any port installed on an option card. See the instructions that came with the card(s) for the correct jumper settings.

Setting the Speaker

If you want the computer's built-in speaker to beep during certain operations you may perform, select Enabled for the Speaker option (the default setting). If you do not want to hear the speaker, select Disabled.

Setting the Disk Drive Controllers

If you are using the standard drive(s) that came with your computer, you should set the Internal diskette drive controller and Internal hard dies drive controller options to Enabled (the defaultsettings).

However, if you install an option card to provide a controller for a diskette drive or hard disk drive, select Disabled for the appropriate controller option(s).

Setting the Password Options

The SETUP program lets you set an optional password to control who can use your system. If you do not want to set a password for your computer, skip this section.

Once you set a password, you must enter it every time you turn on or reset your computer. If you do not enter it correctly, you cannot access your system.

Follow these steps to set a password:

1. **Highlight the Password security option and press Enter.**

2. **The default setting is Not installed. Press + or - to change the setting to Installed.**

3. **Now highlight the Password option and press Enter. The default setting is Not set.**

4. **Press F2. You see the following prompt:**

   Enter Power on Password

5. **Type the password you want to use. You can type up to seven characters using the letter or number keys. For example, you could enter the following:**

   123abcd

   Do not use characters that require the Shift key, such as %, @, or #, in your password. The computer does not distinguish between characters that are produced with the Shift key and those that are not.

   The characters do not appear on the screen. (You can use <- Backspace to correct mistakes.)

6. **After you type the password, press Enter.**

7. You see the prompt `Enter Password Again`. Type your password and press Enter. The Password option setting changes to set.

> **Note**
> Be sure to remember the password you enter or write it down and keep it in a safe place. If you forget your password, you will not be able to use the computer the next time you turn it on. See Password Problems" in Chapter 6 of the User's Guide for more information.

8. If you will be using your computer as a network server and want to set your password to operate in a special network security mode, highlight `Network` server mode and press Enter. Then press + or - to change the setting from Not installed to Installed. (See "Using Your Computer as a Network Server" in Chapter 1 of the User's Guide for information about network server mode.)

After you set a password, you can change or delete it, if necessary, when you are using the SETUP program or when you are entering the password to access your computer. Follow the steps in the appropriate section below to change or delete an existing password in SETUP. See Chapter 1 of the User's Guide for instructions on entering, changing, and deleting your password as you access your computer.

Changing a Password

If you need to change the password, follow these steps:

1. If you are already running SETUP, go to step 2.

   If you are not running SETUP, follow the instructions at the beginning of this chapter to start the program.

2 Highlight the Password option and press Enter. The current setting is Set.

3. Press F2. You see a prompt to enter your old password.

4. Type your old password and press Enter.

5. At the next prompt, type a new password and press Enter.

6. You see a prompt to re-enter your password. Enter your new passwordagain.

Be sure to save your settings as you exit SETUP to keep your new password. See page 2-26 for instructions.

Deleting a Password

If you want to delete the password and disable password security, follow these steps:

1. If you are already running SETUP, go to step 2.

   If you are notrunning SETUP, follow the instructions at the beginning of this chapter to start the program.

2. Highlight the Password security option and press Enter. The current setting is Installed.

3. Press [+] or [-]. You see a prompt to enter your old password.

4. Type your old password and press [Enter]. The Password security Option setting changes to Not installed.

Be sure to save your settings as you exit SETUP to keep your password security changes. See page 2-26 for instructions.

Setting the Diskette Drive Type(s)

Your system came with at least one diskette drive and you may have installed another drive of a different size or capacity. The SETUP program may automatically detect the type(s) of diskette drive(s) you haveinstalled. Check these settings to make sure they are correct for your configuration.

The following types may be set for diskette drives A and B:

- **1.44MB, 3.5-inch**
- **1.2MB, 5.25-inch**
- **720KB, 3.5-inch**
- **360KB, 5.25-inch**
- **Not installed.**

The *Number* of *diskette drives* **option also displays the number of drives SETUP detects in your system. See page 2-12 for more information.**

Setting the Hard Disk Drive(s)

The SETUP program lets you select the type of hard disk drive(s) installed in your computer. If you have two hard disk drives, the first one is drive 1 and the second one is drive 2. Be sure to choose the correct setting for both drives.

Follow these guidelines:

- **If your system does not have a hard disk, select Not installed for drives 1 and 2 If you have only one hard disk drive, select Not installed for drive 2**
- **If your computer came with an Epson 120MB hard disk drive, or if you installed this drive, select type 39 for drive 1. For the Epson 240MB hard disk drive, select type 34.**
- **If you have installed another type of hard disk drive, you need to select the drive type that matches your drive. See "Hard Disk Drive Types" below.**

Hard Disk Drive Types

If you installed a hard disk in your computer that is not the standard Epson 120MB drive (type 33) or 240MB drive (type 34), you need to select the correct type to match your drive.

The following table lists the types of standard hard disk drives you can use. Check this table and the documentation supplied with your hard disk to find the correct type number for your drive. (Your drive's documentation should list all the parameters necessary to identify it in this table.) If none of the types listed matches your drive, see "Defining your own drive type" on page 2-23.

Note

The SETUP program Hard Drive options do not list the Precomp or Landing zone parameters for the hard disk drive types. These parameters are included in the table below for your reference.

Hard disk drive types

Type no.	Cylinders (CYL)	Heads (HDS)	Precomp	Landing zone	Sectors (SEC)	Size* (In MB)	Drive name/ manufacturer
1	306	4	128	305	17	10	
2	615	4	300	615	17	20	ST-225, ST-4026, WD-93024
3	615	6	300	615	17	30	ST-138A †
4	940	8	512	940	17	62	
5	940	6	512	940	17	46	
6	615	4	none	615	17	20	CP-3024, ST-125, ST-125A, ST-325A
7	462	8	256	511	17	30	
8	733	5	none	733	17	30	ST-4038
9	900	15	none	901	17	112	
10	820	3	none	820	17	20	
11	855	5	none	855	17	35	
12	855	7	none	855	17	49	
13	306	8	128	319	17	20	
14	733	7	none	733	17	42	
15							- reserved -
16	612	4	0	663	17	20	
17	977	5	300	977	17	40	CDC 94205-51, CP-3044 †, CP-2044 †, 7040 †, 8051A †
18	977	7	none	977	17	56	
19	1024	7	512	1023	17	59	CP-2064
20	733	5	300	732	17	30	MK-133FA
21	733	7	300	732	17	42	MK-134FA, ST-157A †
22	733	5	300	733	17	30	
23	306	4	0	336	17	10	

Hard disk drive types (continued)

Type no.	Cylinders (CYL)	Heads (HDS)	Precomp	Landing zone	Sectors (SEC)	Size* (in MB)	Drive name/ manufacturer
24	903	4	none	902	46	81	CP-30084 †
25	776	8	none	775	33	100	CP-3104
26							- reserved -
27	698	7	300	732	17	40	
28	976	5	488	977	17	40	
29							- reserved -
30							- reserved -
31	732	7	300	732	17	42	
32	1023	5	none	1023	17	42	
33	901	5	none	900	53	116	LPS120AT
34	723	13	none	722	51	234	LPS240AT †
35	934	16	none	933	17	124	MK2124FC
36							- reserved -
37	683	16	none	682	38	202	CP-3204F
38	548	8	none	547	38	81	CP-2084
39	761	8	none	760	39	115	CP-30104†
40	980	10	none	979	17	81	7080A, MK2024FC
41	1022	5	none	1022	34	84	CDC 94216-106 (ESDI)
42	1022	5	none	1022	36	89	CDC 94216-106
43	1024	8	512	1023	17	68	1325, 3085, LAN64, XT1085, NDR1085
44	828	10	none	828	34	137	MK-156F
45	1024	5	512	1023	17	42	
46	615	8	128	618	17	40	

- Actual size when formatted may be slightly different than the size listed on the drive label.

+ Hard disk drive supported In translate mode

† Epson drives

Defining your own drive type

If the parameters for your hard disk that are listed in its documentation do not match any of the types listed in the table above, you can define your own type. Follow these steps:

1. **Highlight the Hard disk 1: or Hard disk 2 : option and press Enter.**

2. **Press F2. You see the following prompt in the middle of the screen:**

   Enter number of cylinders on disk

3. **Use the numeric keys along the top of the keyboard or on the numeric keypad (with the num lock function turned on) to enter the appropriate value for the number of cylinders on your hard disk. (If you make a mistake, press ← Backspace to erase the value before you go to the next step.)**

4. **Press Enter. You see a prompt to enter the number of cylinder (read/write) heads on the drive.**

5. **Type the correct value as described in step 3 and press Enter.**

6. **You see a prompt to enter the number of sectors per track on the disk. Type the correct value as described in step 3 and press Enter.**

   You do not enter a value for the drive size; SETUP does this automatically based on the other parameters.

SETUP displays your hard disk drive type as UD followed by the parameter you entered.

Setting the Non-cache Areas

Your computer automatically caches all of your system memory except for four of the system defined non-cache address areas listed in the table below. You can enable or disable caching in any of six, System Defined Cache control Areas and also set two additional User Defined Non-cached Areas (also listed in the table).

Non-cache address areas

Option	*Default Setting*
Systern defined areas	
A0000h - AFFFFh caching	Disabled
B0000h - BFFFFh caching	Disabled
C0000h - CFFFFh caching	Enabled
D0000h - DFFFFh caching	Disabled
E0000h - EFFFFh caching	Disabled
F0000h - FFFFFh caching	Enabled
User Defined areas	
1st User defined non-cache low address	0000000h*
1st User defined non-cache high address	0000000h*
2nd User defined non-cache low address	0000000h*
2nd User defined non-cache high address.	0000000h*

* If you set any user-defined non-cache areas, SETUP automatically sets me high address at least 4KB higher man me corresponding low address.

You may want to disable caching in a certain address area to avoid any memory conflicts if you install an option card or other device that uses the same address area.

To change the setting of one or more System Defined Cache Control Areas, select an address area and press + or - to choose Enabled or Disabled.

To disable caching in one or more user Defined Non-cached Areas, you set the beginning address of the range in a low address option; then you set the ending address in the corresponding high address option.

First highlight the low address option and press Enter. Then press + or - to scroll through the addresses in 4KB increments; or press Pg Up or Pg Dn to scroll in 256KB increments. (You see the corresponding high address option setting increase at least 4KB higher than the low address.) Once you set the low address, set the corresponding high address in the same manner.

> *Note*
> You cannot use these SETUP options to cache any RAM you may have installed on an option card.

Setting the Cache Test and Use Control Options

Using SETUP, you can enable or disable your computer's internal cache (built into the microprocessor). The default setting for the Internal cache option is Enabled.

You may need to disable the cache if it malfunctions or if you use timing-loop-dependent software that requires a slower system speed. Check your software documentation to see if this is necessary.

You can also disable power-on diagnostic testing of your cache if you are receiving cache errors that prevent you from using your computer. This way, you can perform any steps necessary to diagnose the problem as you obtain technical assistance. (The default setting for the POD Internal cache test option is Enabled.)

> **Note**
> Neither of the cache options described in this section affect yoursystem's VirtualCache™ feature.

Saving Your Settings and Exiting SETUP

The way in which you exit the SETUP program depends on whether you have changed the settings of any SETUP options and whether or not you want to save these changes. For example, you can do one of the following to exit SETUP:

- Make no changes and exit
- Save your changes and exit
- Not save your changes and exit.

Follow the steps in the appropriate section below to exit SETUP. If you have just run SETUP for the first time, also be sure to read "Post-SETUP Procedures" at the end of this chapter for further instructions on setting up your computer.

> **Note**
> You can also save your changes and remain in SETUP by pressing F10 any time you are using the program. Then press Enter.

You made changes, and want to save them and exit SETUP

Press [Esc]. You see the following menu:

Save and Exit
No Save *and Exit*
Return to Setup

Highlight Save **and Exit and press [Enter]. The computer saves your settings in its CMOS RAM and reboots.**

To remain in the SETUP program, highlight Return to setup and press [Enter]. The exit menu disappears and you see the current SETUP screen.

You *made* no changes and want to exit *SETUP*

Press [Esc]. You see the following menu:

Exit setup
***Return to* setup**

To exit the program, highlight Exit setup and press [Enter]. The computer continues the booting process and loads your operating system from a diskette or your hard disk drive.

To remain in the SETUP program, highlight Return to Setup and press [Enter]. The exit menu disappears and you see the currents SETUP screen.

You made changes and want to exit SETUP without saving the changes

Press [Esc]. You see the following menu:

Save and **Exit**
No Save and *Exit*
Return to Setup

Highlight No Save and Exit and press [Enter]. The computer does not save any changes you made to your SETUP options. The computer reboots and tries to load your operating system from a diskette or your hard disk drive.

To remain in the SETUP program, highlight Return to Setup and press [Enter]. The exit menu disappears and you see the current SETUP screen.

You saved your settings with [F10]

You can save your changes and remain in SETUP by pressing [no] any time you are using the program. When you press [F10], you see a message confirming that your changes are saved. Press [Enter] to remove the message.

The manner in which you exit SETUP after using the F10 key depends on whether you made any changes to your settings after pressing [F10].

If you have made no further changes to your SETUP options and press [Esc] to exit SETUP, you see the following menu:

Exit Setup
Return to Setup

You do not see the save and Exit option because you have already saved the latest changes to your computer's CMOS RAM when you pressed F10. Highlight Exit setup and press Enter. The computer reboots and tries to load your operating system from a diskette or your hard disk drive.

If you made additional changes to your settings after you pressed F10, press Esc to exit SETUP. You see the following menu:

```
Save and Exit
No Save and Exit
Return to Setup
```

To save your additional changes, highlight Save and Exit and press Enter. The computer saves the latest settings in its CMOS RAM and reboots.

If you do not want to save your additional changes, highlight No Save and Exit and press Enter. The computer does not save any changes you made since you pressed F10. However, the computer still reboots so it can use the settings you saved in your CMOS RAM and then tries to load your operating system from a diskette or your hard disk drive.

(To remain in the SETUP program, highlight Return to Setup and press Enter. The exit menu disappears and you see the current SETUP screen.)

Post-SEtUP Procedures

If you have just run SETUP for the first time, you now need to install the operating system on your computer. See your operating system manuals for instructions.

> **Note**
> **You may see an error message and a prompt to run SETUP when your computer is rebooting if it detects a problem in your SETUP configuration If so, follow the instructions on the screen to run SETUP and correct the problem.**
>
> **You may also see an error message when your computer is rebooting if you have not installed your operating system on the hard disk or have not inserted a system diskette in drive A. If you receive this error message, simply follow the instructions in your operating system manuals to install the software on your computer.**

After you have installed your operating system, you can install any software you plan to use. See your application program manuals for instructions.

If you are going to install Microsoft Windows, be sure to also install the Windows VGA driver(s) as appropriate for your monitor. See the VGA Utilities Guide for instructions.

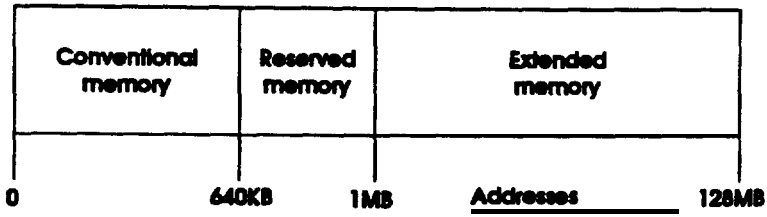
Appendix A

Using Memory

Your computer comes with 4MB of memory, and you may have installed additional memory. This appendix describes how the memory in your computer works and gives guidelines for using the appropriate memory manager program to control your memory.

Types of Memory

A computer's memory is divided into three types: conventional, reserved, and extended The diagram below shows the relationships between these types of memory and their addresses.



All memory in a computer is managed using addresses-numbers that describe the location of each byte of data. Each memory chip must have its own set of unique addresses so that the operating system knows where to store and find data.

Coventional memory (also called base memory) is memory that the operating system recognizes and manages directly. The size of conventional memory is limited to 640KB and has addresses in the range 0 to 640KB.

Reserved memory is in the memory in the range 640KB to 1MB. The system enhance its performance by using 256KB of this memory as shadow RAM. Some of the remaining memory may be available; see Appendix A of the User's Guide for information on how your computer uses this memory.

Extended memory is memory with addresses in the range 1MB to the maximum system memory, and can be used only by the following

- certain operating systems, such as OS/2
- Some MS-DOS interfaces, such as Windows
- Some RAM disk programs, such as VDISK
- Some hard disk caching programs, such as SMARTDRV
- Certain specially-written, protected mode MS-DOC applications.

Most versions of MS-DOS include a standard extended memory manager. If you are using MS-DOS, Windows, and other compatible program, it is best to use one of the memory managers (such as HIMEM.SYS) that came with your software because these memory managers have been tested and proven reliable.

Most MS-DOS commands and application programs cannot use extended memory directly. They need to use expanded memory. This type of memory allows some MS-DOS applications to get around the 640KB limitation. You control expanded memory with a memory manager (such as EMM386.EXE), which enables the computer to use your memory as expanded memory.

For more information about your system's memory, see the "System Memory Map" in Appendix A of the User's Guide. For instructions on using your memory manager, see the documentation that came with it.

> **Note**
> Microsoft Windows comes with its own memory manager; be sure to install it if you use Windows and your system is not preconfigured. (See your Windows documentation for instructions.)

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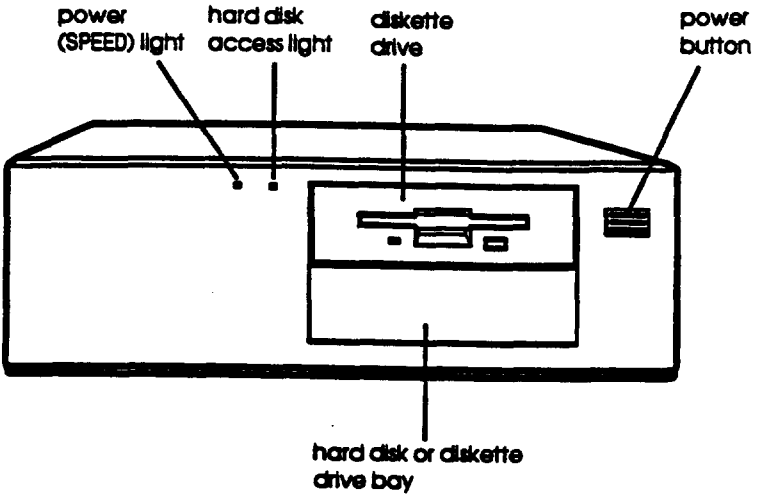
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access light
diskette
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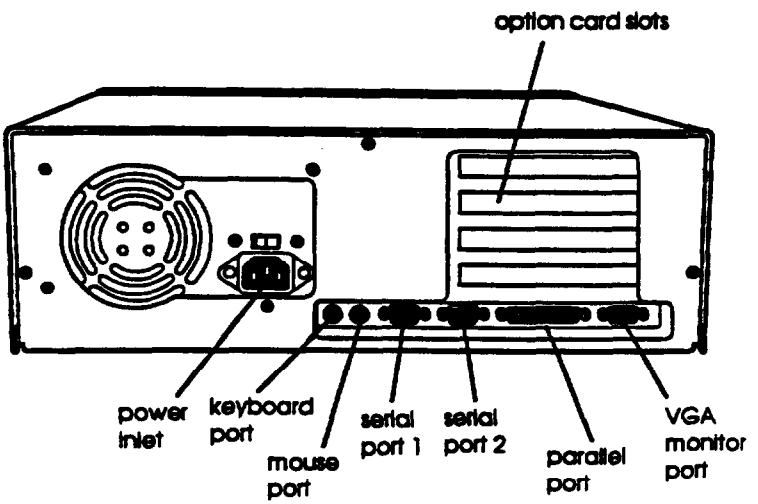
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